AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A method for demodulation of radio navigation signals that are transmitted in spread spectrum and that comprise (i) a data channel that is modulated by a navigation message and (ii) a pilot channel that is not modulated by the navigation message, the data channel and the pilot channel being combined into one multiplexing scheme in order to modulate a carrier, the method comprising:

determining Doppler velocity aid using a discrete navigation system that does not rely only on the radio navigation signals, wherein the discrete navigation system combines information from the radio navigation signals with other information that is independent of the radio navigation signals;

generating a despread data signal by subjecting the signals of the pilot and data channels to despreading processing; and

demodulating the despread data signal in order to obtain the navigation message,

wherein the demodulation of the despread data signal used to obtain the navigation message is performed with the aid of the carrier obtained from the despreading processing of the pilot channel,

wherein the despreading processing is performed by code tracking processing combined with at least one of carrier phase tracking processing or carrier frequency tracking processing,

wherein the code tracking processing is performed using a delay-lock loop (DLL) or an open-loop device, and

wherein the carrier tracking processing is performed using an open-loop device ~~a frequency-lock loop (FLL) based on the Doppler velocity aid~~.

2. (Previously Presented) The method as claimed in claim 1, wherein the pilot channel and the data channel are time-multiplexed.

3. (Previously Presented) The method as claimed in claim 1, wherein the pilot channel and the data channel are phase-multiplexed.

4. (Cancelled)

5. (Previously Presented) The method as claimed in claim 1, wherein the pilot channel and the data channel are multiplexed in accordance with a scheme in which the carrier includes at least the data channel and the pilot channel.

6-7. (Cancelled)

8. (Previously Presented) The method as claimed in claim 1, wherein the method is applied to at least one of (i) demodulation of satellite navigation signals of GPS-IIF L5, L2C type, or (ii) demodulation of satellite navigation signals transmitted by one of a GALILEO system, ground stations, modernized GLONASS satellites, COMPASS satellites, or QZS satellites.

9. (Currently Amended) A receiver for radio navigation signals that are transmitted in spread spectrum and that comprise (i) a data channel that is modulated by a navigation message and (ii) a pilot channel that is not modulated by the navigation message, the receiver comprising:

a despreading and tracking device comprising (i) a spreading code generator that supplies spreading codes and (ii) first means for applying the spreading codes to the pilot channel and the data channel in order to obtain despread pilot and data signals;

a demodulator that uses the despread pilot signal to demodulate the despread data signal in order to obtain the navigation message; and

second means for estimating or tracking frequency or phase of the despread pilot signal, wherein the second means comprises ~~a frequency-lock loop (FLL) that tracks the pilot signal and a delay-lock loop (DLL) that drives the spreading code generator, wherein the FLL is~~ open-loop devices designed to receive Doppler velocity aid from a navigation system that combines information from the radio navigation signals with other information that is independent of the radio navigation signals.

10-11. (Cancelled)

12. (Previously Presented) The receiver as claimed in claim 9, wherein the FLL comprises a discriminator of extended arctangent form.

13. (Previously Presented) The receiver as claimed in claim 9, wherein the FLL comprises one of a first-order filter and a second-order loop filter, wherein the filter is adapted to dynamics of the radio navigation signals.

14. (Previously Presented) The receiver as claimed in claim 13, wherein an output of the filter is coupled to the DLL, the DLL comprising a zero-order loop filter.

15. (Previously Presented) The receiver as claimed in claim 9, wherein the DLL comprises a discriminator that is applied to the despread pilot and data signals, the despread data signal being weighted by a coefficient that depends on a signal-to-noise spectral density ratio (C/N_0) of the radio navigation signals.

16. (Cancelled)